

RESEARCH HIGHLIGHTS

January 2003

Director's Office (Washington, DC and Denver, Colorado)

Held conference call with Regional Research Coordinators to discuss upcoming call for proposals, enhanced science and technology initiative for FY04, and invasive species initiative. (Shannon Cunniff, 202-513-0682; Chuck Hennig, 303-445-2134)

Sent Desalination Research Roadmap to the Office of Management and Budget for clearance prior to release to public. Contracting with the National Research Council for review of the roadmap was completed. The National Research Council has nearly completed development of its review committee. The initial product of the committee will be delivered by mid-June (about one month late, due to scheduling difficulties posed by the proposed chair of the review committee). The Deputy Assistant Secretary has approved this later date. (Shannon Cunniff, 202-513-0682)

Met with **LC Region, Yuma Area Office** and its business practices consultants regarding formation of a Yuma Desalting Plant governance board and current activities to resolve day-to-day management challenges as well as challenges posed by increasing readiness for possible startup of the plant. The proposed governance board would meet once or twice a year to review and discuss improvements to business practices, facilitate coordination on research activities, and provide other advice to the Area Manager. The Area office will develop a charter or charge to the governance board. (Shannon Cunniff, 202-513-0682; Kevin Price, 303-445-2260)

Participated in Japan-U.S. summit on Global Climate Change Research associated with water management. The session focused on developing joint efforts to address climate change effects on the water cycle, water availability, and water usage. Reclamation presented its ongoing research, agency interests, and needs with respect to research in the above-listed areas; work on the **Rio Grande** was highlighted. Reclamation facilitated a workgroup focused on water supply and demand assessment and drafted a work group report for inclusion in the summit's proceedings. In the past, this annual summit has resulted in development of joint Japan-U.S. research projects implemented by academic institutions as well as Department of Energy National Laboratories, NASA, and NOAA. This was a unique opportunity to provide information about what information is needed for on-the-ground water resource management decisionmaking and should help focus researchers on products that provide more immediate utility. (Shannon Cunniff, 202-513-0682; Dave Matthews, 303-445-2470)

Hosted the Water Resources Research Coordination meeting. Met with a leader of the new www.science.gov site to learn more about how the site is organized, how it can be used, and whether the team assembled for its development might assist our efforts to develop a virtual Federal water resources research center. A draft proposal for the virtual center will be forward to the science.gov team and the new Reclamation web master for review of concept and to seek support for its implementation. Presented an overview of Reclamation's research program to attendees (Agricultural Research Service, Forest Service, Corps of Engineers, USGS, and DOE) (Shannon Cunniff, 202 513-0682)

Met with NASA researchers and mission planners to learn about their capabilities and discuss opportunities to use their data and information management and interpretation capabilities to

advance water management challenges. Pursued development of a proposal to hold workshops in several locations across the West to link NASA with on-the-ground end users to communicate data and research needs so that NASA can develop more readily usable products for Reclamation and its water customers. Possible workshop sites were discussed and include **Yakima Basin, Albuquerque, Sacramento, Salt Lake City/Upper Colorado watershed, and the Denver area.** (Shannon Cunniff, 202-513-0682)

Worked with the Department on initiation of the invasive species initiative pursuant to the new funding proposed for most DOI agencies in FY2004 budget. This initiative will focus on collaborative partnerships demonstrating innovative means of controlling and eradicating tamarisk and other aquatic invasives in the southwest. A conference call with **regional invasive species coordinators**, Office of Policy, and Technical Service Center (TSC) staff was held to share current information and start development of proposals for implementation in FY 2004. (Shannon Cunniff, 202-513-0682)

Brought together **PN, MP, and TSC** modelers to coordinate a variety of river-modeling proposed and ongoing activities regarding biological needs. Followup meeting is planned for early February to coordinate PN and MP projects funded by S&T program and facilitate TSC support and involvement. Natural Heritage Institute will also present to Reclamation regional and TSC staff their proposal for studies associated with conjunctive management of water supplies in California. (Chuck Hennig, 303-445-2134)

Upcoming Events

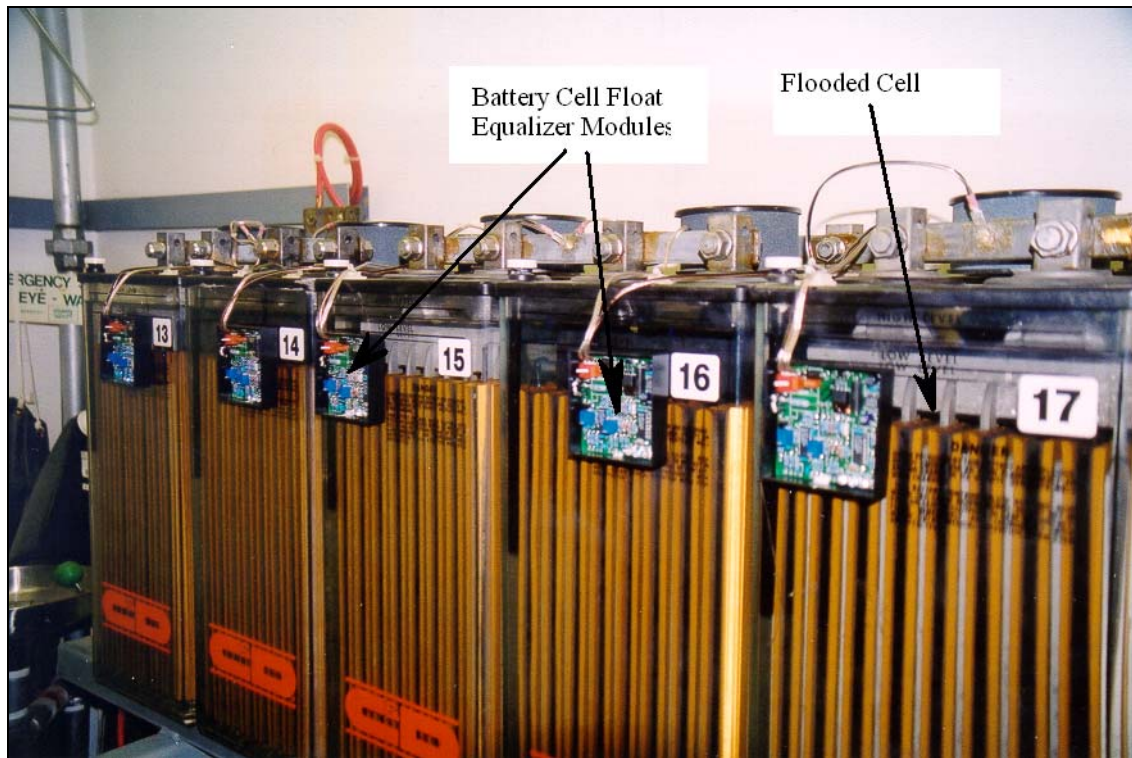
February

3–4	OMB PART training (in D.C.) (Shannon Cunniff, 202-513-0682)
11–13	American Meteorological Society meeting—presentation on water management science needs (Dave Matthews to substitute for Shannon)
11–13	Area Manager conference—Boise
13–18	AAAS annual meeting (in Colorado)
19	Research Exchange workshop: Stretching Agricultural Water Supplies (a pilot), Greeley CO. (Siegie Potthoff, 303-445-2136)
20	Feedback on workshop & next steps (Shannon Cunniff, 202-513-06282)

Improving Infrastructure Reliability

For the Hydroplant Condition Monitoring—Battery Cell Equalizing Module, submitted a Report of Invention on an electronic circuit to equalize/balance the cell voltages of large, multicell batteries, such as those used in Reclamation facilities. The equalizer circuit has been tested in the laboratory, and 81 modules that incorporate this circuit have been deployed at **Mt. Elbert**

Test Installation at the Loveland Communication Shop



Switchyard and Eastern Colorado Area Office Communication Shop (see photo) to demonstrate their effectiveness. Powerplant batteries are the most critical system in a powerplant and are the sole source of power and control in emergency situations. (Jim DeHaan, 303-445-2305, Malin Jacobs)

Regarding High-Voltage Generation (Powerformer™), the technical proposal submittal from Alstom Power has been delayed until early February. A contract to acquire and install a high-voltage generator for **Folsom Powerplant** is expected to be awarded in early calendar 2003, and the generator is expected to be operational in mid-2004. High-voltage generation research is expected to continue throughout the pilot project phase. High-voltage generation promises to reduce maintenance costs and environmental risks while improving efficiency and reliability. (George Girgis, 303-445-2310)

Upcoming Events

February

Work will be initiated to add monitoring of the voltage components of ancillary services that are required to support power system reliability. (Steve Stitt, 303-445-2316)

Improving Decision Support

Members of the **Watershed and River Systems Management Program (WaRSMP)** Technical Team and several of their partners submitted a series of four invited journal articles to the American Society of Civil Engineers. These articles focus on the WaRSMP program and other S&T-funded activities including recently developed stochastic hydrology capabilities and the USBR Hydrologic Modeling Inventory. (Don Frevert, 303-445-2473)

The **Truckee** Work Group completed a successful demonstration run of the RiverWare-based Truckee River Operational Forecast Model. This includes improved Data Management Interfaces to allow transmittal of hydrologic data between models as well as some enhanced capabilities for water accounting. (Don Frevert, 303-445-2473)

The **Columbia Basin** Project Work Group held a conference call to review progress and scope out upcoming efforts on implementation of the MMS, RiverWare and AWARDS-ET Toolbox programs. Significant progress was noted on all three of these programs, and it is hoped to have some MMS modeling runs available by mid-April. (Don Frevert, 303-445-2473)

Upcoming Events

February

5 The Yakima study team will hold a conference call on February 5 to discuss upcoming priorities for the Yakima fishery habitat models and other basins in which the technology may be deployed. (Don Frevert, 303-445-2473)

April

16-17 The Reclamation and USGS technical steering committee will meet in Ephrata Washington to do a general review of progress on the program and to plan activities for the coming year. (Don Frevert, 303-445-2473)

Improving Water Supply Technologies

The Bureau of Reclamation, working cooperatively with the USDA Agricultural Research Service and the International Institute for Land Reclamation and Improvement (the Netherlands), completed publication of ***Water Measurement with Flumes and Weirs***. This 380-page book is **the definitive reference** on the design, calibration, and construction of long-throated flumes and broad-crested weirs, the most accurate, adaptable, economical, and efficient structures for measuring water flow in open channels. The book is the final accomplishment of a multiyear research effort that also produced the WinFlume computer program, a user-friendly design and calibration tool that is used throughout the United States and in over 40 foreign countries (www.usbr.gov/wrrl/winflume/). The work was cooperatively supported by three organizations (Reclamation, ARS, ILRI) and several Reclamation programs, including Science & Technology, Water Conservation-Field Services, and Manuals & Standards. (Cliff Pugh, 303-445-2151)

Improving Water Delivery Technologies

Within the **Middle Rio Grande Basin** of New Mexico, data analysis of willow flycatcher nests located between 1999 and 2002 suggests that although flycatchers most frequently establish territories in willow-dominated habitat patches, they often select saltcedar trees in these stands to construct their nests. This has been a major concern of many who oppose saltcedar control. Initial statistical analyses suggest that nests found in saltcedar trees, and/or located in saltcedar-dominated territories tend to be parasitized by brown-headed cowbirds to a greater degree than nests located in native habitats, and are generally less productive. If this hypothesis proves to be valid, management efforts targeted at the control of saltcedar in the Middle Rio Grande (e.g., Saltcedar Bio-Control) may benefit the willow flycatcher. Saltcedar control efforts that remove monotypic stands of saltcedar or mixed stands with a dominance of exotic species, in coordination with restoration efforts that promote the establishment and/or expansion of native habitats and increase opportunities for overbank flows would be of particular benefit to the species. (Darrell Ahlers, 303-445-2233)

Reclamation staff from the **Albuquerque Area Office and the TSC**, along with representatives from the USDA Agricultural Research Service met with the FWS Regional Director to discuss tamarisk biological control research using *Diorhabda elongata* (tamarisk leaf beetle). The group responded favorably to setting up case studies within the Pecos River Basin and possibly elsewhere in the Southwest. FWS staff expressed some reluctance on conducting studies in the Rio Grande at this time; however, this will be clarified in subsequent discussions. Studies will need to be done in similar detail as those at Pueblo, Colorado to provide best information on spread and effect of beetles. Interest is also strong in having a restoration/revegetation component to this work. Site selections are still being determined. Currently, the plan is to do this all on federal lands or federally affiliated lands. The following is a list of potential Reclamation study sites pending further internal review, as well as acceptance by FWS:

- Lake Meredith National Recreation Area near **Amarillo, Texas**
- Brantley Dam/Lake McMillan near **Carlsbad, New Mexico**
- Bosque Del Apache NWR near **Socorro, New Mexico**
- Big Bend National Park /adjacent national parks in Mexico

Upcoming Events

February

11-13 Saltcedar Biological Control Consortium, Albuquerque; multiple agencies attending. (Fred Nibling, 303-445-2202)

Met with University of Nebraska and Colorado State University professors to discuss adaptations to our existing model that will allow an assessment of the economic consequences arising from water marketing operations. (Rob Davis, 303-445-2730)

Canal Lining Demonstration Project—Year 10 Final Report now available online at <http://www.pn.usbr.gov/project/wat/programs/canal/index.html>. Over the last 10 years, Reclamation has constructed 34 canal-lining test sections on 11 irrigation districts in 4 states.

The test sections typically cover 15,000 to 30,000 square feet and include combinations of geosynthetics, shotcrete, roller-compacted concrete, grout mattresses, soil, elastomeric coatings, and sprayed-in-place foam. Benefit-cost analysis is used to evaluate the test sections by compiling information on construction costs, durability (service life), effectiveness (seepage reduction), and maintenance costs. (Jay Swihart, 303-445-2397)

Regional Reports

The **Great Plains Region** Reservoir Research projects have collected data from 9 different reservoirs over the last 3 years. Baseline water quality information has been gathered to assess problems with selenium, pH, DO, and temperature. Only 3 reservoirs will be studied in FY 2003: Turquoise Reservoir (ECHO), Altus (OK/TXAO), and Angostura (DKAO). (Cindy Williams, 406-247-7719)